—or Habitat?

A Place for Wintering Monarchs

Monarch butterflies clustering in a eucalyptus grove at Andrew Molera State Park, near Big Sur, October 2003. This phenomenon occurs in some eucalyptus groves and Montery pine stands within the national parks in the S.F. Bay Area. *Photograph courtesy of Ventana Wildlife Society.*

AN IMPORTANT QUESTION WHEN managing eucalyptus groves is whether tree thinning or removal will affect monarch butterflies.

Every fall, monarch butterflies throughout North America migrate to overwintering sites in California or central Mexico. This long-distance migration is unique among insects. In fact, the North American monarch butterfly, *Danus plexippus,* is the only insect in the world known to make the same kind of annual, long-distance migration as birds or whales.

Most of the monarchs in the western states fly to the California coast to the same overwintering sites each year, while those east of the continental divide generally fly to the mountains of Mexico for the winter. In these relatively mild areas, they seek a specific protective microclimate where they hang in dense clusters waiting until the weather changes to return to their breeding ranges.

Monarchs cluster in California from October through February. In spring, they mate and the females depart, flying north and east to search for the milkweed plants on which they must lay their eggs. Generations of monarchs repopulate the west until the snap of autumn stimulates thier return migration to the coast.

Monarch butterflies are known to overwinter at more than 200 sites from Baja California to Sonoma County, with two of the "top ten" sites occurring in Marin County. The characteristics necessary to support overwintering Monarchs include the type of trees and other vegetation (such as ground covers), protection from wind and storms, proximity to water, and a microclimate of stable temperature, sunlight, calm and humidity.

Within the Bay Area national parks, monarchs have overwintered at Fort Mason, the Presidio, Fort Baker, Fort Barry, Tennessee Valley, and Palomarin. They have also overwintered adjacent to parklands in Muir Beach, Stinson Beach and Bolinas. The groves they use are usually eucalyptus or Monterey pine, because the stand structure is well-suited to the monarch's overwintering needs, and these trees are abundant in the coastal landscape. At two sites in Marin County, monarchs prefer Monterey pines.

There is no documentation of monarch butterfly presence or tree usage in Native American oral history, art work, or legends, nor in the post-contact descriptions. However, there are records from the late 1800s of Monarch butterfly migration and clustering in Monterey County. There is also anecdotal information from Marin County about monarchs overwintering in both pine and eucalyptus at Stinson Beach from the early 1900s. Other records indicate some monarch clustering in sycamore and oak in Santa Barbara County, and use of redwoods and cypress in Monterey County.

Today, many overwintering sites are endangered by modern land use activities. In 1983, the annual Monarch migration was declared a "threatened phenomena" by the International Union for Conservation of Nature and Natural Resources. Monarchs are also the only insect listed in the Bonn Convention on the Conservation of Migratory Species of Wild Animals, an international treaty protecting various animal taxa. Since so much contemporary Monarch overwintering habitat has been lost, some leading scientists believe this spectacular flight and clustering behavior may disappear in this century, and they advise protecting the remaining Monarch groves and important buffer zones.

The Monarch butterfly is a symbol of the seasons, the ebb and flow of life forms—a fragile and beautiful connection to the mysteries of nature.

Mia Monroe
Muir Woods National Monument

Above:* The "Five Sisters" planted at the original site of the old Lupton House is an example of historic eucalyptus used as a windbreak in the Olema Valley. *Photography by Phil Frank

Heritage Trees, Cultural Forests

Some eucalpytus trees in the San Francisco Bay Area have historic significance, associated with military posts and ranches established in the late 1800s and early 1900s. These trees are of special concern to cultural resource managers. Eucalyptus makes up a large component (42%) of the Presidio's 400-acre Historic Forest which has its origins in the 1883 "Plan for Cultivation of Trees upon the Presidio Reservation", developed by Army Major W. A. Jones. The perimeter plantings at Fort Baker, near Sausalito, are also important features. The old eucalyptus trees associated with ranches in the Olema Valley were planted for wind protection and privacy. Out on the Point Reyes Peninsula, a mile-long row of trees marks the Howard-Shafter boundary, between G and H Ranches. In all of these examples, the trees have expanded beyond their historic footprint. Careful plans to restore these features to their original proportions need to be developed. A program to replace old, dying trees with younger ones in order to maintain cultural landscapes may be necessary. The Presidio has embarked on a program to replace the blue gum on Rob Hill with an alternative, non-invasive species of eucalyptus.

Eucalyptus trees with historic significance in national parks are protected under the National Historic Preservation Act. Other eucalyptus trees may have protection under local ordinances as "Heritage Trees", due to their significance to a particular community.

Birds and Blue Gum

MANY DIFFERENT BIRDS USE EUCALYPTUS TREES FOR NESTING, ROOSTING AND FORAGING. Research in the East Bay has shown that the number of species found in eucalpytus groves is similar to that in native woodlands, but the species themselves are different (Sax, 2002). Research in Santa Cruz County has shown that as many as 40 bird species regularly nest in eucalyptus. (Suddjian, 2004).

Although many birds do use eucalyptus trees, some scientists are concerned about the effects of eucalyptus on birds. Birds attracted to insects feeding on eucalyptus nectar may suffer higher rates of mortality or reproductive failure. For example, eucalyptus gum may cover the feathers and nostrils of insectivores such as the Ruby-crowned kinglet, potentially causing harm. (Stallcup, 1997) According to Geoff Geupel, Terrestrial Ecology Dirctor for PRBO Conservation Science, some birds that nest in eucalyptus, such as Anna's Hummingbirds, may have lower nest survivorship due to exposuse to high winds or storms, or other factors not present when nesting in native vegetation. Furthermore, eucalyptus groves often provide nesting for Great Horned Owls, Common Ravens, American Crows, and Red Shouldered Hawks, which are predators on smaller birds or their nests.

A study comparing wildife use of eucalyptus trees versus native vegetation on Angel Island found three times more arthopods, more small mammals, and more bird species in the native oak-bay woodland and grassland than in eucalyptus. The few bird species found to prefer eucalyptus were widespread species that occupy many different habitats throughout their range. (Keane and Morrison, 1990)

Eucalyptus specialists "down under" are larger and better equipped than North American species to forage flowering trees.

Top to Bottom:
Tasmania's Yellow Wattlebird,
Australia's New Holland Honeyeater,
Eastern Spinebill.

Top to Bottom:
Yellow-rumped Warbler,
Ruby-crowned Kinglet,
Anna's Hummingbird.

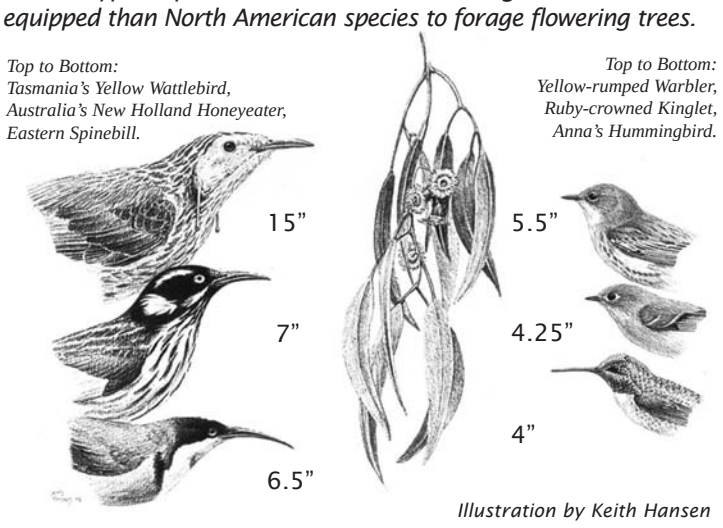

Illustration by Keith Hansen

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